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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,242	04/14/2004	David H. Hanes	200309081-1	6424
22879 7590 01/13/2009 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400				
EXAMINER AVELLINO, JOSEPH E				
ART UNIT 2446		PAPER NUMBER		
NOTIFICATION DATE 01/13/2009		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/824,242

**Applicant(s)**

HANES, DAVID H.

**Examiner**

Joseph E. Avellino

**Art Unit**

2446

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1-48 are presented for examination; claims 1, 13, 24, 33, 38 and 43 independent.

***Specification***

2. The Office has considered the amendments to the title. The Objection to the Specification is hereby withdrawn

***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-23, 33-37, and 43-48 are rejected under 35 U.S.C. 103(a) as being unpatentable Heil et al. (USPN 6,173,374) (hereinafter Heil) in view of by Miyoshi et al. (USPN 6,901,451) (hereinafter Miyoshi).

4. Referring to claim 1, Heil discloses an I/O request processing system (i.e. nodes 150), comprising:

a drive command module adapted to receive an I/O request from a client application (i.e. host's upper layers, which contain the software needed to operate the host system) referencing a data block request for processing said I/O request (i.e. I/O

redirector software 240) (Figure 2; Figure 3, ref. 400; col. 10, lines 50-65; col. 11, lines 45-52); and

a redirector adapted to automatically and transparently convey the I/O request over a communication network 121 to a remote peripheral device 151 for processing of the I/O request (i.e. the I/O redirector software calls the I/O ship ISM in order to ship request to remote HBA, the host's upper layers 200,300 have no knowledge of the redirection, it merely waits for the request to be fulfilled by the I/O driver) (Figure 3, ref. 450; col. 11, line 45 to col. 12, line 7).

Heil does not explicitly disclose the request referencing a local peripheral address of a peripheral device to execute the I/O request. In analogous art, Miyoshi discloses another I/O request translation system which receives an I/O request of a local peripheral device (i.e. PCI request references a local PCI address space which is then mapped to a plurality of remote peripheral devices represented by the remote PCI address space) at a module which references a local peripheral address to execute the I/O request (Figure 5; col. 12, lines 25-37; col. 4, lines 30-67). It would have been obvious to one of ordinary skill in the art to combine the teaching of Miyoshi with Heil by substituting the block directory subsystem of Heil with the address/node ID translator 309 of Miyoshi in order for the users of Heil to realize the benefits of Miyoshi, specifically the ability to transfer local PCI bus transactions from a local node of a PCI bus to a PCI bus on a remote node over a network (Miyoshi: col. 1, lines 55-57).

5. Referring to claim 2, Heils-Miyoshi discloses the redirector is adapted to correlate the local peripheral address space with an address of the remote peripheral device (i.e. translate local address space to address of remote device) (Miyoshi: Figures 3 and 10a).

6. Referring to claim 3, Heils-Miyoshi discloses the redirector is adapted to replace the local peripheral address with an address of the remote peripheral device (i.e. translate the local address space to an address of the remote device) (Miyoshi: Figure 10a, ref. 1003).

7. Referring to claim 4, Heils-Miyoshi discloses the drive command module calls a bus driver (i.e. I/O shipping ISM 270) to invoke the redirector (i.e. I/O ISM 270 formats the request and sends the request out to the network) (Heils: col. 11, lines 35-45).

8. Referring to claim 5, Heils-Miyoshi discloses a network server (i.e. remote network PCI adapter 419) adapted to receive the I/O request from the communications network and execute a command (i.e. various PCI commands such as read/write) to process the I/O request via the remote peripheral device (i.e. device 415A-B) (Miyoshi: Figure 4; col. 9, line 57 to col. 10, line 24).

9. Referring to claim 6, Heils-Miyoshi discloses the I/O request includes a field identifying the local peripheral address (Miyoshi: Figure 5; Figure 6, refs. 615, 620).

10. Referring to claim 7, Heils-Miyoshi discloses a relational database (i.e. node ID table) to correlate local peripheral address with an address of a remote peripheral device (Miyoshi: Figure 7a, ref. 703; col. 10, lines 50-64).

11. Referring to claim 8, Heils-Miyoshi discloses formatting a drive command issued by the drive command module for delivery over the communications network to the remote peripheral device (i.e. I/O ISM formats the request into a format to be transmitted over the network) (Heils: col. 11, lines 35-45).

12. Referring to claim 9, Heils-Miyoshi discloses the redirector inserting an address associated with the remote peripheral device into the drive command (Heils: col. 11, lines 35-55; Miyoshi: col. 10, lines 50-64).

13. Referring to claim 10, Heils-Miyoshi discloses the network server receives the I/O request from the network and extracts an address associated with the remote peripheral device (i.e. translation of a destination address from a base address and address offset of a local I/O request) (Miyoshi: col. 10, line 65 to col. 11, line 14).

14. Referring to claim 11, Heils-Miyoshi discloses the local peripheral address corresponding to a local peripheral address of a host device of a drive command

module (i.e. the local address references an address which corresponds to an address space indicating that the request is a remote address request) (Miyoshi: Figure 5).

15. Referring to claim 12, Heils-Miyoshi discloses the redirector is disposed on the host device (i.e. I/O ISM software is on the node) (Heils: col. 11, lines 35-45).

16. Claims 13-23 recite essentially the same limitations of claims 1-12 in method form and are rejected for similar reasons as stated above.

17. Claims 33-37 recite essentially the same limitations of claims 1-12 in means-plus function language and are therefore rejected for similar reasons as stated above.

18. Claims 43-48 recite essentially the same limitations of claims 1-12 in a computer-readable medium and are therefore rejected for similar reasons as stated above.

Claims 24-32, and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heils-Miyoshi in view of Hewitt (USPN 5,987,541).

19. Referring to claim 24, Heils-Miyoshi disclose the invention substantively as described in claims 1-12. Heils-Miyoshi do not explicitly disclose that the I/O request is to record data to an optical medium, however Miyoshi does disclose that the I/O request can be a write request (see rejections above). In analogous art, Hewitt discloses

another computer system which discloses an optical drive (i.e. CD-ROM drive 132) on a PCI bus 120 (Figure 1). It would have been obvious to one of ordinary skill in the art to combine the teachings of Heils-Miyoshi to substitute the remote device on the PCI bus 201c-e of Miyoshi with the CD-ROM drive of Hewitt in order to provide the benefits of Hewitt to Heils-Miyoshi, specifically the ability to communicate with an optical drive via a well known bus protocol such as PCI.

20. Claims 25-32 and 38-42 are rejected for similar reasons as stated above.

### ***Response to Arguments***

21. Applicant's arguments filed November 10, 2008 have been fully considered but they are not persuasive.

22. Applicant argues, in substance, that since Heils discloses that a connection to the remote HBA must occur before the remote request, it does not "automatically and transparent to the client application" send the request to a remote peripheral device. The Examiner disagrees. While the Examiner does not dispute that the connection must be established, this has nothing to do whether or not the client application does not know about the request being remote. The client application just sends the request, it does not know or care where this request is fulfilled. This is the job of the I/O redirector software 240, not the client application (i.e. the higher host layers 200) (see Figure 2). The request process is the same (as seen from the higher host layers) for



local requests as they are for remote requests. By this rationale, the redirection is completely transparent to the client application and therefore the rejection is maintained.

23. Applicant argues, in substance, that Miyoshi does not disclose the local peripheral address for processing a remote I/O request. The Examiner disagrees. As shown in Figure 5 of Miyoshi, the local address space 505 has a particular address space for a remote request (i.e. Node ID 0). This can be understood as a local address on the transmitting side. It is then translated/mapped to a remote node ID 515 by translating the local node ID and the address offset into a destination node ID and a request address (see Figure 6, ref. 723). This is then mapped to a remote base address 725 and a remote address offset 727. By this rationale, it is clearly shown that a local PCI address is mapped to a remote peripheral address and therefore the rejection is maintained.

### ***Conclusion***

24. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2446

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph E. Avellino whose telephone number is (571) 272-3905. The examiner can normally be reached on Monday-Friday 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey C. Pwu can be reached on (571)272-6798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph E. Avellino/  
Primary Examiner, Art Unit 2446